DRIVER

FEBRUARY 1981

"safe"

was the weekend's word

The Rabbit race was its usual self — more than $500 in fines were assessed to drivers, many of them $25 each for bumping; five cars were crashed, at least three of those suffering major damage, and Paul Hacker (running third in this picture) edged season champion Gary Benson (fourth car in the draft) by 0.146 seconds at the end of the 50.8-mile race.

Bob Earl (#5) passed polesitter David Bruns (#94) on the first green flag lap of the Robert Bosch/VW Super Vee race and held on to win by 0.379 seconds.

"Safe" was the weekend's Word

Put a lot of weekend in your week

"I had to run as safely as I could" may not be exactly what you expect to hear a race driver say. Especially a winning race driver. Maybe you wouldn't expect to hear another driver explain that he didn't race because modifications required by the officials couldn't be done "safely within the time frame." However, both those statements were made during Budweiser Grand Prix Weekend at Riverside International Raceway, Calif.

The first statement was made by Al Holbert, winner of the final 1980 Citicorp Can-Am Challenge. George Follmer made the other statement. Follmer came into the weekend with two cars to drive, but never started a single race.

Holbert was content to hold third at the start of the 50-lap Can-Am race behind polesitter Geoff Brabham and Keke Rosberg. Holbert put his CRC Chemicals Special Holbert CAC-1 Chevy into the lead for the first time on lap six when Brabham and Rosberg came together in turn seven while battling for the lead.

Riverside's turn seven comes at the end of about 1,500 feet of undulating straightaway. The radius of the turn actually begins over the crest of a blind hill. It has always been a favorite passing spot. Race cars come up the hill while braking, which increases the stopping power and allows drivers to wait longer than normal before jumping on the binders.

The start of any CRC Chemicals Trans-Am race finds a field filled with a variety of cars. At Riverside there were 14 Corvettes, six Camaros, five Porsches, three Monzas and two each Datsuns and Mustangs.

It is not unusual for a driver taking the classic line through turn seven — from the outside edge of the straight toward an apex that can't be seen about halfway around the corner — to find another competitor passing on the inside. The passing driver having aimed for an earlier apex can wait to brake until much later. World Champion Driver for 1979, Jody Scheckter, did this to Holbert during the International Race of Champions a few years before.

Holbert probably had one of the better seats in the house to watch the Brabham-Rosberg incident develop. He was less than 100 yards behind when they went over the hill.

"During pre-race warm-up," Holbert recalled, "I was following Geoff and noticed that he took that turn awfully wide. I had it in my mind to tell him that he was leaving himself wide open.

"I had been watching the two (Brabham and Rosberg) and I noticed that Geoff was taking a wide line through turn seven. I figured Keke would try and take him there but I was a bit surprised when he did it. I think I might have been more conservative. Keke was really more anxious than I would have been, but he wanted it. I think he just got in so deep that he couldn't do anything about it. There was no place for either of them to go."

Actually there turned out to be some place for all three drivers to go. The impact knocked the right front fender off Rosberg's Budweiser Lola T-530 Chevy, but he managed to slow down and stay on the track. Brabham, who is the son of three-time World Driving Champion Jack, was sent spinning into the desert. Amid the dust and broken fiberglass body panels, he restarted his Lola T-530 but retired to the pits with suspension damage. Holbert darted around the outside of Rosberg for the lead.

Despite major body damage to his machine, Rosberg fought his way back up to Holbert's rear wing. On lap 21 as the two struggled for the lead, they bumped at — you guessed it — turn seven.

"When Keke passed me," Holbert related, "I had just lost my front brakes. He was running clean so I had no choice and just let him go. I had to run as safely as I could."

Fortunately, Riverside doesn't require a lot of braking, but with only rear-wheel brakes, Holbert's job became even more delicate. With 25 laps run his right rear tire blistered and made driving even more dodgy.

Rosberg handed Holbert back the lead when he made his routine pit stop on lap 38 for fuel and to have the heavily damaged right-side body work removed. The stop took 28 seconds. On the next lap, Holbert visited his pit for fuel and to have the crew look at the right rear tire. The stop took only 10 seconds and Holbert retained his lead.

continued

CRC Chemicals Trans-Am fast-qualifier Roy Woods leads race winner Greg Pickett into turn seven just before Pickett outbraved and out-braked Woods going into turn nine at the end of the 10th lap.

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
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VOLUME 14 NUMBER 9

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THE EDITOR SPEAKS

DOUBLE CLUTCH

A NATIONAL SEAT BELT LAW?

Whenever the staff gets a chance to speak with someone from the Department of Transportation, insurance companies, university safety centers or other places traffic safety people congregate, we ask about the possibility of a national seat belt law. We get negative answers. Some say it's up to the individual states and not the federal government. Others say Americans wouldn't stand for such a law. And still others say maybe insurance companies should call failure to wear belts some sort of contributory negligence in bodily injury accidents. Nobody has ever told us they think there's the slightest possibility that Congress will enact a seat belt law, now or next year or ever.

So we were surprised to read the following on the editorial page of a recent *Automotive News*, the weekly newspaper of the automotive industry:

"It is about time that Congress realizes that the one thing that will save lives tomorrow and that will do the most good for the most people immediately is to implement a mandatory seat belt law on a national level.

"The percentage of automobiles that have three-point belts installed in them is significant. The savings of lives would be incredible and the result would start the same day as the law was passed.

"Anyone who says that Congress does not have the power to enact such a law should remember that Congress did exactly that when it enacted the 55-mile-per-hour law back in the mid-70s. It was able to very quickly pass a law encouraging the states to pass a new speed limit or lose substantial amounts of federal funds. It worked and it worked quickly . . . Regardless of the merits of air bags or passive restraints, a seat-belt law would save a substantial number of lives."

The same day we read this, an Australian officer who works in our building brought us a clipping about a conference in Melbourne, Victoria, marking the tenth anniversary of Victoria's state law for the compulsory wearing of belts. (This law triggered similar legislation in 25 countries.) In 1970, more than 1,000 people were killed on Victoria's roads. This year, despite a 50% increase in the number of cars on the road compared with 1970, the death toll will be about 700. Doctor Bob Campbell, Director of the Highway Safety Research Center at the University of North Carolina, spoke at the Melbourne conference. He said the Victorian state law for the compulsory wearing of seat belts in cars is the world's single most important contribution to road safety.

By the way, are you buckling up?

"safe" was the weekend's word

continued

Rosberg was right on Holbert's tail again when on lap 41 he was given the mechanical black flag because his left-side body panel was rubbing on the rear tire. It took his crew only seven seconds to tear off the offending fiberglass, but Keke had lost his momentum and hung on to finish fourth.

But Holbert's battle was far from over. With less than three laps to go, Elliott Forbes-Robinson, Rosberg's teammate on the Paul Newman-owned team, closed in on Holbert, but couldn't pass. "I could catch up to him quite easily," said EFR, "but when I got up to him, the turbulence was so bad I couldn't pass him."

However, Holbert never saw EFR. Not even when the second Budweiser Lola swung low on the long sweeping turn nine in an attempt to pass. "When I saw L-5 (five laps to go) on the pit board," Holbert commented, "I reckoned I could chance it and go as hard as I could without making the rear tire explode. I saw the pluses coming on the pit board and knew somebody was gaining on me, but I didn't know who. I figured I could make my car pretty wide when I had to. If I could see him in the mirror I didn't worry; if I couldn't I knew he was attempting to pass.

"But I never saw him coming up behind me. In fact, I could hardly see at all because it was so dark. I almost didn't see the checkered flag," the winner concluded.

In addition to the end of daylight saving time earlier that morning, darkness descended onto the end of the race because the start had been delayed almost an hour by all the other races held prior to the Can-Am. Included in the Sunday program were: a Robert Bosch-VW Super Vee Championship; a Rabbit/Bilstein Cup race for stock VW Rabbits; a 40.98-kilometer bicycle race; an 8.196-kilometer roller skate sprint, and 10 and six-kilometer runs.

The day before the Can-Am, the final 1980 CRC Chemicals Trans-Am Championship race was held. This was the first of two races that George Follmer had planned to contest.

continued

continued

George had won the 1965 U.S. Road Racing Championship and 1972 Can-Am crown, as well as the 1972 and 1976 Trans-Am titles. However, he has spent the last two years recovering from an accident at Luguna Seca. There the throttle stuck in his Can-Am car and it flew across a drainage ditch and landed in a chain-link fence. He spent 16 days in a Monterey hospital while doctors tried to rebuild a shattered right ankle and has been undergoing therapy since.

George felt that he had been "led down the primrose path" by race officials regarding his Trans-Am car. The officials had tentatively OK'd his former International Race of Champions Camaro owned by Ray Woods, provided nine modifications were made. But when the car arrived for practice, the officials asked for two more modifications.

They said the front suspension was set up wrong and that the engine was about 1¼ inches too far back in the chassis. Officials claimed the problems could be corrected overnight. On race morning the suspension had been corrected, but not the engine placement. "It's a major repair," remarked Follmer. "For future races it can be done. But it can't be done overnight. We told them we couldn't do it safely within the time frame they gave us."

George didn't start the Trans-Am.

As for his Can-Am ride, it was to prove just as disappointing. George was scheduled to drive Brad Frisselle's revolutionary Frissbee but Frisselle and chief mechanic Joey Cavaglieri decided Follmer had not recovered sufficiently from his 1978 accident to handle the quick ground-effects car.

The car with Al Unser behind the wheel had walked away with the Laguna Seca Can-Am the weekend before.

"We felt George wasn't getting the potential from the car we expected," noted Cavaglieri. "It wasn't that he wasn't doing a good job, it was just that he didn't have any previous experience with the way ground-effects cars handle. It was all new to him and we didn't have enough time for him to get fully acclimated. So, instead of staying with him, or pulling the car out of the race, we decided to go with John Morton, who did all the development work."

Although Morton was a tenth-of-a-second slower than Follmer at the end of qualifying, the decision stood. George didn't race.

Ground-effects cars use the air (or lack of air) passing underneath the vehicle to hold it to the track. Because of this they generate much more cornering force than most drivers are used to. George said that even though he never needed a helmet strap to keep his head upright while driving NASCAR stockers on high-banked ovals, he needed one for the Frissbee in Riverside's turn nine.

Ground effects Can-Am cars generate about 2 Gs lateral acceleration force. As a comparison, the average driver feels a street car is out of control when loads approach half a G. That's one-quarter the force.

For the record, Morton qualified the Frissbee sixth on the grid. On lap three he and Ricardo Londono came together at that famous turn seven. While Morton continued, Londono pitted to change his left rear wheel. Having worked his way back up to sixth, Morton retired the car on lap 27 with a blown engine.

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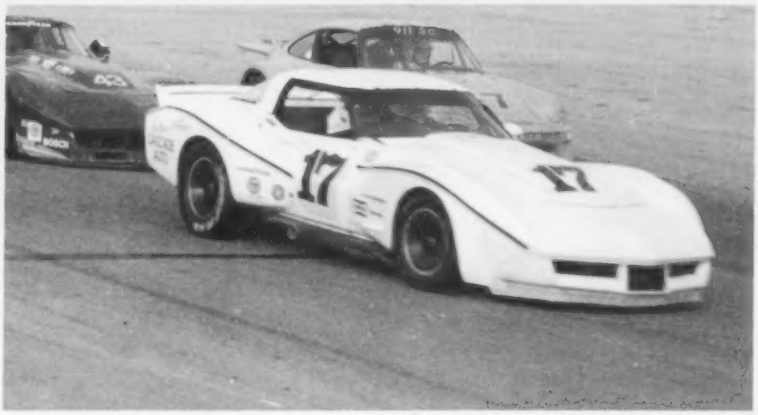


(above)
Monte Shelton (#57) makes a clean pass on Rick Stark (#17) at turn seven while Frank Joyce follows the Porsche through.

(right)
Shelton finally came out on top of what at one time was a seven-car battle for sixth place.

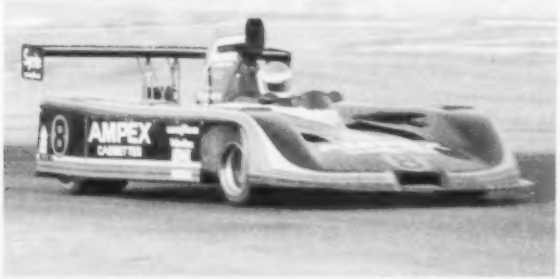
CRC Chemicals Trans-Am Champion for 1980 John Bauer (#98) twice passed third place finisher Mark Pielsticker only to spin his way back to fifth at the end of the race.

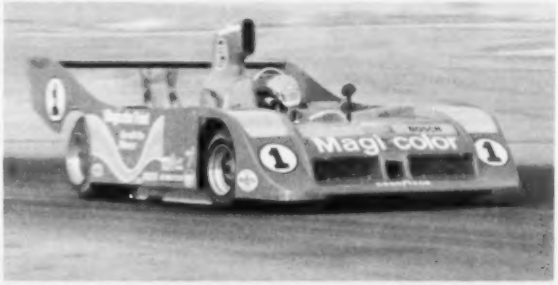
Trans-Am racing is always very close as 1980 series Champion John Bauer (#98) hints to Charles Morgan that he would like to get past.

Fastest qualifier Geoff Brabham has a clear lead over Keke Rosberg and the rest of the field as they approach turn seven on the first lap of the final Citicorp Can-Am.

Roy Woods' banzai qualifying run that put him on the pole by more than a half second faded during the race with a spin leaving him 18.909 seconds behind after 101.6 miles.

(left) Al Holbert piloted his CRC Chemicals Special to the third closest win in the 15-year history of Can-Am racing. In the 110 Can-Am races run, only three have been won by American-built chassis: two of those were by Holbert this year, the other by a Chaparral during the first year of the series. However, American engines have won all but 14 of the races (Chevy, 95; Porsche, 14; Ford, 1). **(right) Gary Gove,** the 1980 Citicorp Can-Am under 2-liter Champion, took another class victory in his Pete Lovely Ralt, finishing seventh overall.



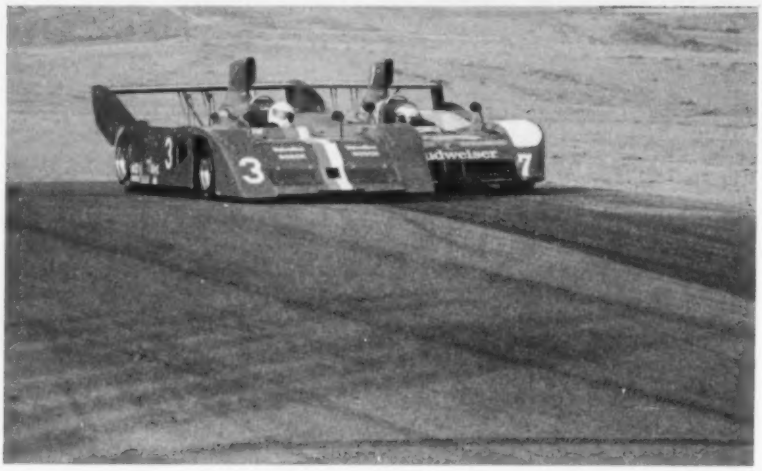


(left) Bobby Rahal came home eighth despite two long pit stops for the Ampex Cassettes Prophet. **(right) Patrick Tambay,** 1980 Citicorp Can-Am Champion, drove a smooth race to take third in his Magicolor Lola T-530.

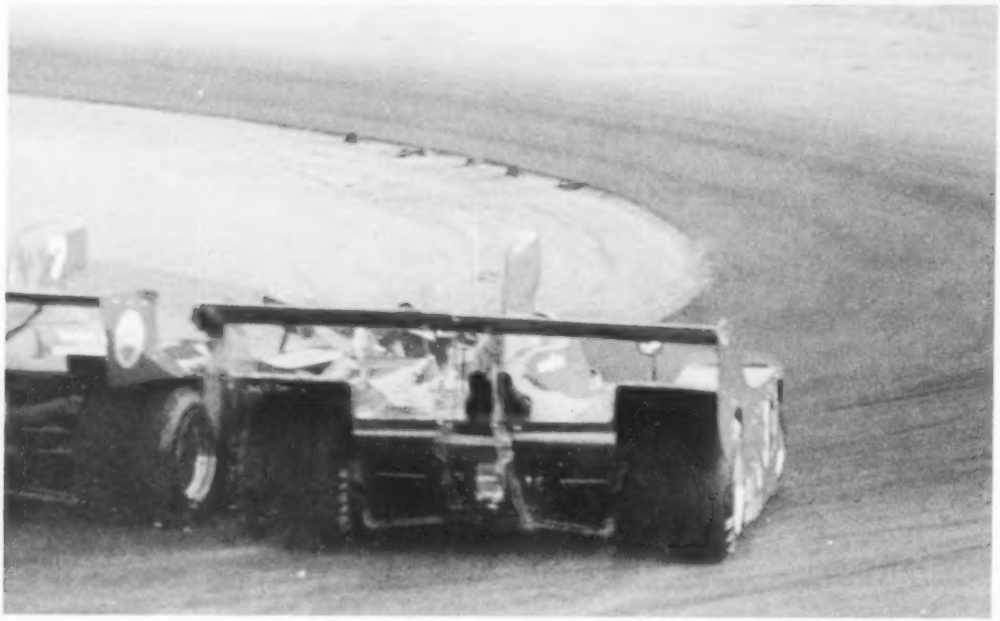
"safe" was the weekend's word

continued

Meanwhile, Ray Woods took his other Camaro out for a banzai qualifying run that saw him on the pole of the Trans-Am event by more than a half second. However, Gregg Pickett out-braved and out-braked Woods with his "Son of Super 'Vette'" going into turn nine on lap 10 and led the final 31 laps.



(right, below)
Polesitter Geoff Brabham (#3) and Keke Rosberg come together at turn seven in their battle for the lead. Brabham spun off the turn and retired to the pits with suspension damage while Rosberg carried on to finish fourth.



Budweiser Grand Prix Weekend Results

Citicorp Can-Am Challenge

Overall

1. Al Holbert, Holbert Racing/CRC Chemicals Holbert CAC-1 Chevy **2. Elliott Forbes-Robinson,** Newman Racing/Budweiser Lola T-530 Chevy **3. Patrick Tambay,** Magicolor Lola T-530 Chevy **4. Keke Rosberg,** Newman Racing/Budweiser Lola T-530 Chevy **5. Rocky Moran,** Ferracone Lola T-332 Chevy **6. Ricardo Londono,** Londono Bridge Racing Team Lola T-530 Chevy

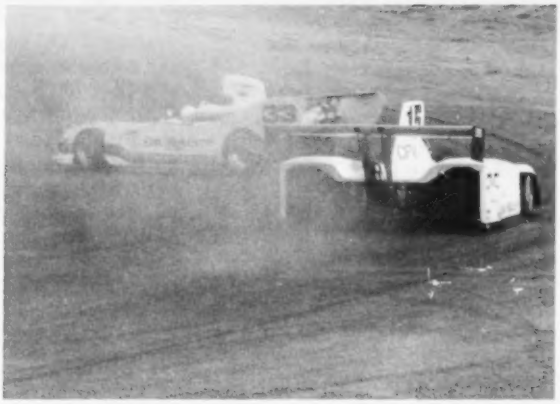
Under two-liter Championship

***Gary Gove,** Pete Lovely Ralt RT-2 (7th overall)

*Season Champion

(above, right)
Keke Rosberg's Budweiser Lola T-530 (#7) looks the worse for wear when compared with teammate Elliott Forbes-Robinson's identical Paul Newman-owned car. But Rosberg eventually lost more body work in pit stops and finished fourth, while EFR came back to challenge for the lead, falling 0.652 seconds short of the win.

(below)
Keke Rosberg (#7) retakes the lead from Al Holbert in another turn seven pass shortly after Holbert lost his front brakes.



Ricardo Londono (#33) suffers the most from an encounter with John Morton, although Londono went on to finish sixth while Morton retired because of engine failure.

CRC Chemicals Trans-Am Championship

1. Greg Pickett, Pickett Racing Corvette **2. Roy Woods,** Oftedahl/Style Auto Camaro **3. Mark Pielsticker,** Service Center GRS Monza **4. Tuck Thomas,** Telesystem/Lancer Stores Corvette **5. *John Bauer,** Larry Green Racing Porsche 911SC **6. Monte Shelton,** Porsche-Audi Northwest Porsche 911SC

VW Rabbit Bilstein Cup

1. Paul Hacker, Hacker Bros. Racing Rabbit **2. *Gary Benson,** Rabbit Custom **3. Karl Hacker,** Hacker Bros. Racing Rabbit **4. John Williamson,** Williamson Rabbit **5. Peter Schwartzott,** GMP Performance Rabbit **6. Darrell Wratz,** Boomerang Rabbit

Robert Bosch VW Super Vee Championship

1. Bob Earl, C.E. Miller Ralt RT-5 **2. Dave Bruns,** Centerline Wheels Autoresearch **3. *Peter Kuhn,** Driftwood Ralt RT-5 **4. Josele Garza,** Banco Mercantile Ralt RT-5 **5. Michael Chandler,** Mike Curb Production Special March 81 **6. David McMillan,** Synthoil 100 Special March 81

*Season Champion

U.S. ARMY SAFETY CENTER

PFCs Adams and Alsop were both 19 years old and had been lifetime buddies. They grew up in the same small town, graduated from high school together, and enlisted in the Army at the same time. As luck would have it, they were assigned to the same infantry company at a post 700 miles from home.

During lunch at the mess hall one Friday, they suddenly got the urge to go home over the weekend to see their families and girlfriends. They decided to leave right after work.

When they got off duty, Adams and Alsop made a beeline to their barracks to shower and pack. While Alsop called to tell their families they were on their way home, Adams took his two-door Nova to get it serviced. After waiting in line for almost 30 minutes, he filled up, checked the oil and tire pressure, and cleaned the windshield.

By the time he got back to the barracks to pick up Alsop, it was 6 o'clock. They were finally ready for the 700-mile, 14-hour drive home.

Adams knew that he would have to do all the driving because Alsop didn't have a driver's license. But what the heck —he was going home! He was in high spirits and felt great. He could handle it.

The soldiers stopped for gas about 3:30 the next morning. By now, Adams was tired and sleepy. He decided he needed some coffee to perk him up. He bought a cup and drank it while the car was being gassed up. They hit the road again. They'd be home in less than five hours.

Thirty minutes later, the tired, sleepy driver dozed off. The Nova drifted off the right side of the road and slammed into a guardrail. Adams wasn't wearing his seatbelt and was thrown around inside the car. He died of a broken neck. It is likely that had Adams been wearing his seatbelt, he would be alive today. Alsop was wearing his seatbelt and required only first-aid treatment for shock.

The police officers who investigated the accident found no evidence of drugs or alcohol. The cause of the accident was driver fatigue.

POV accidents are killing and injuring far too many soldiers. Last year alone more than 550 soldiers were killed and another 9,200 were disabled in all types of Army accidents. Although POV accidents accounted for only one out of 10 of all accidents, more than half of the deaths and one-quarter of the injuries occurred in car wrecks.

While drinking and driving is the number one killer on the highway, it isn't the only one. The fact is that year after year people are killed and injured because drivers are just dead

tired. Even in many drinking and driving accidents, the drinking driver is also tired and actually falls asleep behind the wheel.

You have probably heard folks brag about driving 600 or 700 miles in one day. Perhaps this is supposed to mean that they are really good drivers. But are they? Actually, smart drivers know that pushing hard wears them down. Anyway you hack it, driving is work. And work is tiring.

Another thing that most folks don't realize is that no two people are alike. Each person varies in eating and sleeping habits, emotional makeup, and resistance to fatigue. In fact, even the capability to resist the effects of fatigue varies within the same person at different times.

Fatigue affects your driving abilities in many ways. It slows your reaction time; it causes you to make rash decisions; it reduces your attention; and it affects your vision. And all too often, it leads to a dreamy state or dozing behind the wheel.

Many people think that drowsiness is a threat only when the body or mind is tired. But this is not always true. Even if you're not tired, you have a tendency to get sleepy when you do quiet, boring tasks such as driving long distances, especially at night. Snug in the comfortable cocoon of your car, you can be lulled into a false sense of security as you listen to the steady hum of the engine. Unconsciously, you begin to relax. As the miles roll by, boredom sets in, especially on long, straight stretches of road. To these conditions, you often add the soft, soothing sounds of music. It's no wonder that you soon become drowsy and a prime candidate for an accident.

The kind of drowsiness that kills is the kind where you actually fall asleep for two to three seconds. That's more than enough time to cross the centerline or run off the road.

You don't have to let drowsiness get the best of you. You can take precautions to guard against fatigue. Following are some commonsense tips to help reduce or control sleepiness while driving.

- Don't drive more than two hours without a break. After that long behind the wheel, you become less alert.
- If you're on a long trip, avoid the overextended driver pattern — too little sleep, late starts, too long behind the wheel, and too short rest stops.
- Allow about 25 percent of your total travel time for rest breaks outside the car. A short walk or other exercise to stretch tired, cramped muscles will help get your circulation going.
- Avoid alcohol and drugs. They make sleepiness worse. Instead, have a cup of coffee. But remember — coffee is not a substitute for sleep.
- Eat properly. Lack of food can lower your blood sugar and this causes drowsiness. It's a good idea to have something to snack on in the car while you drive.
- Listen to a talk show or newscast on the radio rather than to soft, soothing music.

continued

We're not suggesting you go quite this far! Nevertheless, driver fatigue is no joke. The kind of drowsiness that kills is the kind where you actually fall asleep for a few seconds. That's plenty of time to cross the centerline or run off the road.

■ Take a buddy with you — preferably one who can help with the driving. Not only is it safer, but it's cheaper when sharing expenses.

■ Try not to drive past your normal bedtime. If your normal bedtime is 11 o'clock, your body gets used to shutting off at that time. If you're driving past that normal shutoff time, be aware that your tendency to doze off is increased.

Sleep is not a luxury. It's a necessity. It's foolish to expect your body to function as it should without proper rest. You owe yourself more than that. Loss of sleep is a debt that must be paid — one way or another. Don't take the chance of paying that debt with your life.

THE CONTINUING CASE FOR SEATBELTS

Last year alone, according to the National Highway Safety Administration, more than half of the 50,000 people killed in traffic accidents in the U.S. died in POV wrecks. During this period, the use of seatbelts was credited with saving 3,000 lives, but another 16,000 lives probably could have been saved had the accident victims been buckled in.

Army accident records indicate that at least half the soldiers killed in car wrecks last year would have lived if they had been buckled in.

So why don't more people wear seatbelts? They give all kinds of excuses. A common one is fear of being trapped if the car catches on fire or sinks in water. But the fact is that less than one percent of all injury-producing accidents involve fire or submersion. Even if that does happen, seatbelts can keep you from being knocked unconscious or suffering other injuries which could prevent your escape.

A lot of people think their chances of survival are greater if they are thrown out of a car. The truth is that more people are killed by being thrown around inside the car or by being thrown out of it than from the crash. Experts claim that your chances of being killed are 30 times greater if you're thrown out of the car.

Some people wear seatbelts only on long trips. They think it's not necessary to buckle up for short trips or when driving at slower speeds in cities. But don't you believe it! Actually three out of four traffic deaths occur within 25 miles of home. And half of all accidents involving injury or death occur at speeds of 40 mph or less. Obviously, your safest bet is to buckle up even when driving only a couple of blocks.

Finally, some drivers say they simply forget to wear them. But wearing seatbelts can become a habit. Start forming your habit today. Buckling up is a small price to pay for greatly improving your chances for survival in an accident.

Mirror, Mirror ON THE CAR

How do you use the mirrors on your car? Sure, you may think you use them to full advantage, but do you really?

Do you always check your side mirror before turning or changing lanes, or do you look just in the windshield mirror? Do you rely on one mirror more than the other?

Here's what we mean: A motorcyclist was following one of our staff a few days ago. He was one of the good guys — helmet, jacket and gloves, with his headlight turned on so he could be seen easily. Our friend stopped at the light and glanced in his inside mirror for the motorcycle. It wasn't there. He had to *consciously* turn to the side mirror. There was the cycle; the rider had positioned himself directly behind the left side of our friend's car. The cyclist had assumed a preference for the door mirror, while our friend gives prime attention to the inside mirror.

Of course, the inside mirror is the largest and it gives the widest angle of view. However, it isn't enough. The law enforcement people know that, and they require the side mirror as well.

The point is this: If our friend had to think about looking in his side mirror, if it wasn't a conditioned reflex, then his driving habits need to be altered. He needs to practice using all the mirrors until it becomes as automatic as steering straight down the lane.

How about those of you with the so-called "sport mirrors," the matching mirrors on both doors? Do you use both of them? They are more than just for looks; they are an added safety feature.

How aware of your mirrors are you? Do you even know if all of them are adjusted correctly? Do they jar loose when you close the door? Do you always check them before you turn the key?

Think about your use of the mirrors. Become aware of your own habits. If you do not conscientiously use all the mirrors on your car, train yourself to do so, along with looking over your shoulder.

Don't risk changing lanes on the highway and being hit by a car that was invisible in one mirror, but plainly visible in another.

YES, RUBE, there is a Christmas Tree

"It was a bad scene, man. We'd tipped the can and did a beaut of a burnout. But the shoe must have been out to lunch as he overstaged. The plan was to hang it out in a real banzai run, but the nerd dropped the hammer too soon. Not only did he foul but he lunched the bottom end of our rat motor and we were history."

As you can see, automotive people have their own language. To acquaint the unacquainted with the mysteries of this motoring lingua franca, the following flivver lexicon has been prepared.*

Anchors — Brakes
Bad Scene — Unpleasant situation
Banzai — Exceptionally hard run over quarter-mile drag strip
Barrel — Cylinder
Bash — A racing event
Bench Race — Talk about a race
Bleach — Liquid poured under rear wheels for burnout. Originally this was liquid household bleach.
Bleach Box — They are well behind the starting line for bleach burnouts.
Bite — Traction
Blower — Supercharger
Blueprint — Completely tear down and rebuild an engine to precision not normally found in factory assembly.
Boss — Great, outstanding!
Bottom End — Lower components of an engine
Break — Damage an engine or some part of car
Bubble — Last position in qualifying lineup
Bucks — Prize money
Bug Catcher — Air scoop
Burnout — Spinning rear wheels quickly in puddles of bleach to heat up and clean off tires for maximum bite.
Bye Run — Single run without an opponent. Drag racing rules require that, in

**The author thought it would be fun to try to educate those few people who think they can understand anything. What he meant to say was: To help you understand automotive jargon widely used as a means of communication among speakers of other jargons, the following cheap auto alphabetical word guide has been prepared.*

elimination competition, if the number of cars is uneven, the odd number car must still make a run even though it is to be unopposed at the time.

Cam — Camshaft
Charger — Top performing driver
Christmas Tree — Electronic starting system employing a set of countdown lights for each lane and including green "GO" lights.
Cog — Transmission gear or rear-end gear
Crank — Crankshaft
Cubes — Cubic inches of displacement
DOHC — Double overhead camshaft engine
Dragster — Machine designed especially for rapid acceleration
Drive Around — Catch up and pass opponent after a late start
Drop the Hammer — Release the clutch quickly
Digger — AA/Fuel or AA/Gas dragster
Eliminate — Defeat an opponent in a drag race
E.T. — Elapsed time
Elephant — 425 cu. in. Dodge or Plymouth Hemi engine.
Eyeball — Inspect or examine something
Foul — Leave the starting line before the green light, causing immediate disqualification
Funny Car — Specific class of drag racing vehicle made up of dragster chassis and fitted with plastic body replica of modern passenger car.
Fuel — Nitromethane used to increase power and performance
Fueler — Car utilizing exotic fuel
Fuzz — Police
Handler — Driver
Handicap — Head start given slower vehicle when two cars of different classes are racing together.
Hang It Out — Gamble on a red light start and foul by accelerating off the starting line just before the green light flashes.
Hang Out the Laundry — Deploy parachute brake
Hauler — Hard running driver or car
Headers — Exhaust pipes designed for free flow
HEMI — Hemispherical combustion chamber engine built by Chrysler
Hole Shot — Getting the jump on an opponent at starting line
Honk — Run fast
Hot Dog — Top-ranking driver
Hot Shoe — Top-ranking driver
Huffer — Supercharger
Injected — Engine equipped with fuel injection
Joe Log Bolt — Competitor who runs only on weekends, periodically
Jug — Carburetor
Juice — Special exotic fuel
Lights — Timing lights at starting line and at end of quarter-mile drag strip
Lose Fire — Stall the engine
Loud Pedal — Accelerator
Lunch — Damage engine or other parts severely.
Mayflower — Plymouth
Motor — Common term in drag racing replacing the word "engine"
MOPAR — Chrysler product
Motor Mouth — Gabby person
Nerd — Not hep
Nitro — Short for nitromethane, a fuel additive
Off the Line — Leaving the starting line
Off the Trailer Run — Making exceptionally good run without first having to make adjustments after unloading car
Out To Lunch — Not with it
Overstage — Move the front wheels too far forward at the starting line
Puffer — Supercharger
Put It to the Wood — Apply full throttle
Rail — Dragster with long frame rails, sometimes called "slingshot"
Ratchet Jaw — Person who talks too much
Rat Motor — 427 cu. in. Chevy engine
Red Light — Leave before the green, a foul
Scatter Shield — Protective steel housing around clutch and flywheel
Shoe — Driver
Short Block — An engine block without heads, manifolds, etc.
Shut Off — Slow down before completing run
Slicks — Special treadless tires designed for maximum traction
SOHC — Single Overhead Camshaft engine
Stage — Line up properly at the starting line
Staging Area — Area between pits and starting line where cars are assembled by class or category just prior to running
Street Rage — Illegal race on public roads
Terminal Speed — MPH registered at end of quarter-mile. This is measured electronically from a 166-foot trap on either end of the quarter-mile finish line
Tip the Can — Increase percentage of nitromethane
Trick — Special, fancy, unusually good
Unreal — Fantastic!

So, as you can see Rube, there is a Christmas tree in the auto world.

HOW IT HAPPENS!

AIRMAN ANN WYNOT has about two miles to the freeway exit she's looking for. It is 10 p.m. She drives along at 55 in the right lane, watching as the speeders zip past her and their taillights recede. "Maybe I'm the only one who can read signs," she thinks. As she passes the last exit before her own, she sees that the set of taillights directly ahead are not receding. She just has time to think "Is that car stopped?" before she realizes it is *backing up on the freeway*. With a stream of cars to her left, and no shoulder wide enough to drive on, she can only slam on the brakes and pray. Her car impacts at the right side of the grille. Ann Wynot is thrown against the driver's side door, suffering bruises on her left side, arm, and shoulder, and facial cuts from the broken window.

She later learns that the driver of the car was backing up because he had missed his exit . . . .

Hey, don't scoff — it happens! Some people simply don't realize the dangers of driving a car and feel they can do stupid stunts like that. If *you* miss your exit, go to the next one, get off there and backtrack. NEVER back up.

CUSTOMIZED VANS... How

More people are killed each year in highway accidents in vans than in air carrier accidents.

One of the main reasons for the high fatality rate in vans is an injury-producing environment inside the vehicle. Even in low-to-moderate-speed crashes, seats break loose, unsecured stoves, TVs and stereo speakers fly around like missiles, and secured items such as cabinets and paneling break loose and strike occupants.

Van customizing makes wide use of plywood, lumber, screws, nails and glue to build and attach furnishings. This construction will usually fail in a crash, even at low speeds.

Seats: When vans are customized, highback "captain's chair" seats are often installed for added comfort. Most recline and swivel. Unfortunately, these seats frequently break loose in collisions.

For instance, a 1977 Dodge van with custom seats installed in front was stopped when it was hit from the rear, then forced forward into another vehicle traveling in the opposite direction. Both the driver's seat and right front passenger's seat were captain's chairs mounted on a 6½-inch swivel pedestal. The pedestal base was secured to the floor by four ¾-inch bolts. The seatbacks were 28 inches high. Each seat was provided with a lap seatbelt which had been secured to the floor. After the accident, the seatbacks of both seats were found to be forced rearward more than 45°. The bases of the pedestals had buckled slightly at the floor and the swivel plates bent, permitting the rearward tilt. The driver sustained severe head injuries when the seatback failed and allowed him to move rearward and strike a sink-icebox cabinet. The cabinet had torn loose from a paneled wall to which it had been attached by four nails.

This van is about to get another window. Interestingly, there is some evidence that a properly installed window makes the side panel stronger than it originally was.

Another 1977 Dodge van was struck in the left front at an intersec-

ow safe?

tion. Two custom highback seats had been installed directly behind the driver's seat and right front passenger's seat. All seats were occupied. The right rear seat was struck from the rear by a 185-pound occupant seated on the rear axle wheel well. The seatback was forced forward at impact, causing the seat tracks to separate and the seat pedestal to bend forward. The occupant in this seat suffered leg and back injuries.

A 1974 Ford van was stopped behind an automobile at a stop sign. A garbage truck struck the van in the rear, forcing it into the automobile. The driver's and right front passenger's custom seats had been installed by the van owner. A 170-pound, unrestrained right front occupant was forced rearward at impact, causing the seat pedestal to separate from its base. The seat and its occupant then fell onto an occupant who was siting on the van floor. (Both were injured.) The owner had installed the base plate to the van floor satisfactorily and it did not fail. The 4¾-inch diameter tubular steel pedestal, which attached to the base plate from the seat cushion bottom, failed completely where it attached to the base plate. The wall of the tubular pedestal was 1/16-inch thick. This tube was skip welded to the base plate using four 1½-inch beads at the front, rear, and sides. The metal failed at or near the welds.

Lounging around is fine when the van is parked, but it's dangerous when underway. In case of a collision, three people, a folding chair and a coffee pot will be flying into each other with considerable force.

Furniture, appliances, and unsecured objects: The National Transportation Safety Board (NTSB) recently investigated 18 van accidents, all occurring at low or moderate speeds. In every accident at least some interior furnishing came partially or completely loose from its anchor. Stereo speakers, cabinets, light fixtures, refrigerators, paneling and an electric fan are examples. In one severe crash, many interior furnishings not only came loose but also broke apart and two of the three occupants were fatally injured.

continued

continued

When you look at a beautiful interior such as this one, it's easy to forget how dependent it is on plywood, screws, nails and glue.

Be sure custom seats are well made and are installed securely. And don't forget the seat belts!

In another accident, a large wooden spool on which industrial cable is wound was being used as a table. At impact it was propelled forward against the right front seat, damaging the backrest. Even though the object was padded, it could have dealt crushing injuries.

In still another accident, an acetylene tank and toolbox were thrown forward during a head-on collision. Although the acetylene tank missed the driver, the toolbox struck the right front seat and damaged it. Luckily no one was using that seat.

Some stoves are mounted permanently on the chassis. Others are contained in a modualr unit which consists of a stove, icechest and sink. The unit is placed on the van floor but deliberately not secured so that it can be lifted out for use at a campsite. Such units can be very dangerous to occupants in case of a collision.

Even when secured, appliances don't necessarily stay in place during a crash. In a 1977 Ford, a cabinet with an icebox inside was thrust forward at impact. The cabinet was originally secured to the wall with six to eight ¼-inch sheetmetal screws fastening the cabinet framework to the interior paneling. An occupant on a bed was thrown forward into the cabinet, cutting and bruising her face.

Steering wheels and columns: In the 18 van accidents NTSB investigated, eight drivers were injured or killed by striking the steering wheel and column. Five of the steering wheels were production models and three were custom. In one fatal accident, the van driver ran off the highway, struck a culvert wall and overturned. When the driver's weight fell on the custom steering wheel, two wooden rims splintered, exposing sharp edges which severely lacerated him.

Much of what is known about performance standards for automobile steering wheels and columns does not necessarily apply to vans because the steering column is on a greater angle than that in a passenger car and the front of the van is short. When a van is hit from the front, the steering wheel and column begin to move earlier in the crash sequence than in an automobile.

The tragedy here is that of the 19 van drivers in this investigation (one accident involved two vans) not a single one was using a seatbelt. Either none was available or the driver chose not to wear it. Since in every accident the drivers were subjected to head-on or frontal impacts, it is not surprising that the steering systems did so much harm.

Occupant restraints: The wide variety of chairs, couches, and loveseats installed in vans creates a genuine problem when it comes to installation of restraints.

Of the 64 persons occupying the vans in this study, 21 had restraints available: 13 drivers, seven right front passengers, and one rear occupant. This last person was a seven-month-old infant who was in a child's seat which had been secured by a nylon rope to the lower frame of the right front seat. The infant was the only one of the 64 using a restraint!

Dealing with the problem: Whether you customize your van yourself or have it done by a custom shop, you will have little assurance that the fittings and furnishings are crashworthy. The Recreation Vehicle Industry Association (RVIA) has done some crash testing and has published a manual about securing appliances so their movement will not damage the fuel system in case of collision. The manual also gives examples of how to determine the dynamic forces on the appliance attachments from an engineering viewpoint.

If you are going to have your van customized in a shop, you will want to talk about some of these safety problems before authorizing the work. Find out if the owner is familiar with the RVIA literature. (Customizing of course does not come under Federal control.)

Probably the single most important thing the van driver can do is to be sure that every occupant has a restraint available and is wearing it. And secondly, see that there are no radios, coffee pots, tool boxes or other loose items sitting around the van waiting to become flying missiles in case of a collision.

Vans are fine vehicles and we expect them to grow even more popular. But they do require more thought and attention from their owners than the ordinary auto does.

(This article is based on a Special Study of the National Transportation Safety Board.)

Timely Topics

BIG CARS CALLED BARGAIN

Your best buy in a 1981 automobile might be (surprise!) a big car.

There are two basic reasons for that view, says the Automotive Information Council (AIC):

1. The larger cars have been given lower percentage price increases than their smaller brothers because of the higher popularity of the latter models. For the same reason, dealers will give better discounts on the big cars.

2. The larger cars have received big gains in fuel efficiency this year.

But the smaller cars give better fuel economy, you say. True, but the savings will be less than in the past years because of the improvements in gasoline economy for the bigger ones.

Fuel improvement for many full-size and intermediate cars has gone up about 100 percent when compared with their 1972 counterparts, while gains for small cars have been about half that. The mileage difference therefore has been changed dramatically.

For example, if a driver covers the average 12,000 miles per year with a 30-miles-per-gallon subcompact, the annual gasoline expenditure would be $500 (at $1.25 per gallon).

The owner of a large 22-miles-per-gallon car would spend $681, or a difference of $181 for the year.

Therefore, suggests AIC, there is more than gasoline economy to be weighed when considering a new car. Think about how many people the car will carry on family trips, the luggage space and the purchase price. Weigh all of these factors before making the final decision.

Then you just might decide that a big car will be your best all-around bargain, says AIC.

"THE BEST $28 I EVER SPENT"

On Dead Man's Curve located on Highway 532 near Searchmont, Ontario, Saverio Pasqua was involved in a head-on collision with a truck and, he swears, he almost saw his life pass before him.

Pasqua, 23, says he owes his life to Constable Ernie Rainbird who a few hours earlier had fined him $28 for not wearing his seat belt — and had insisted he and his three passengers buckle up.

It was near noon when Pasqua and friends were returning from a fishing trip. He was going about 55 km/h around the curve in his 1975 Duster when he noticed a garbage truck coming right for him. Neither driver saw each other until the last moment — when it was too late.

"Everything happened so fast. I remember the ambulance coming. I was in pain and shock . . . my ribs hurt bad. The engine was on top of me . . . I was pinned . . . the steering column was broken . . . and I knew if I hadn't had my seat belt on I'd have been dead.

"I tell you . . . it was the best $28 I ever spent."

Ontario Traffic Safety, Sep/Oct 1980

AUTO CRASHES REMAIN A LEADING CAUSE OF DEATH

The U.S. Department of Health and Human Services has just released final mortality statistics for 1978 which show that the rank of the leading causes of death remained unchanged from 1977. Motor vehicle accidents, lumped together with "all other accidents," ranked fourth after diseases of the heart, malignant neoplasms (cancer), and cerebrovascular disease (stroke). The death rate per 100,000 population was 24.0 for motor vehicle accidents and 24.4 for all other accidents.

The report, which is compiled by the department's National Center for Health Statistics, found that motor vehicle accident deaths increased by 2,901 from 49,510 in 1977 to 52,411 in 1978. All other accidents decreased by 542 from 53,692 to 53,150. Between 1977 and 1978 the motor vehicle accident death rate increased for all age groups under 75 years except for the 55 to 64 category. The largest percent increase was 9.2 percent for the 25 to 34 age group.

Motor vehicle accidents remained the leading cause of death in two age categories. In the 5 to 14 year age group there were 8.8 motor vehicle deaths per 100,000 population, while there were 46.4 such deaths in the 15 to 24 category.

CORRECTION: STUDDED TIRE LAWS

Our information on laws for studded tires (October DRIVER) was outdated for one state, Pennsylvania. After a couple of years of banning studded tires entirely, Pennsylvania has now gone back to allowing their use for the winter months only. The state permits them between November 1 and April 1.

TOLL-FREE TELEPHONE HOTLINE

We have often mentioned the special toll-free telephone hotline set up by the National Highway Traffic Safety Administration (NHTSA) to report auto safety problems. Recently we got more information on the hotline, which we'll now pass along. When you call to report a car safety defect, the operators will ask for your name and address and they will send you a form to fill out on the problem. When you return the form, they give it to their investigators for action. A copy is also forwarded to the manufacturer of the vehicle, along with a letter asking for their help in resolving the problem. NHTSA reports that many car owners have received assistance from these referrals. The hotline operators can also give you information on recalls in effect, and they will send printed copies of recall information if you request them.

The number? 800-424-9393. In the Washington, D.C. area, dial 426-0123.

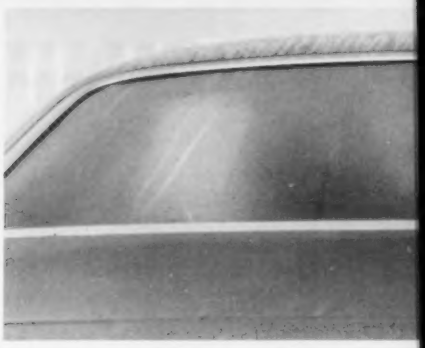
CHILD RESTRAINT LAW APPROVED

Rhode Island is the second state to adopt a law requiring drivers to use proper restraints with child passengers. The law requires approved restraints on children three years or under, riding in the front seat.

The first state to enact a child restraint use law was Tennessee, where operators of automobiles and light trucks are now required to use restraints for passengers under four.

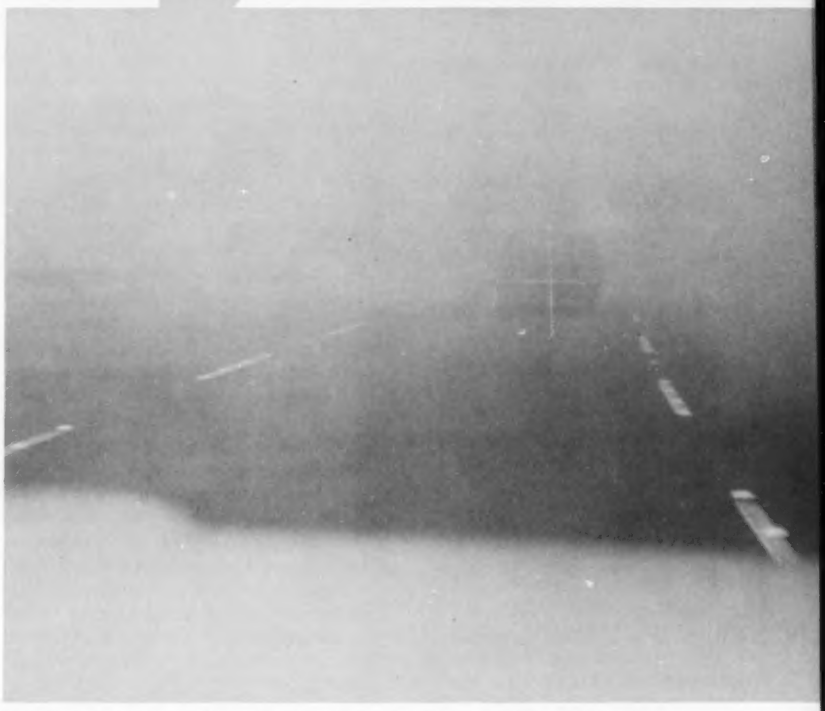
low LIGHT no LIGHT

Fog and darkness as driving hazards



fog

Although it's February and some of the country is getting a let-up in the hassles of cold weather driving, winter is not over yet. We covered most of the winter driving hazards in "Snow Job," in October 1980's DRIVER. But now we want to deal with a couple of others not so commonly thought of — fog and darkness. So find yourself a warm spot by the fireplace and we'll give you a few more seasonal words.



What's that up ahead? A stalled car? A wreck? In fog, *anything* could be there.

Maybe you read about it in the newspapers. Last fall, on a day when a thick fog masked a portion of Southern California, 24 vehicles were involved in a single chain collision.

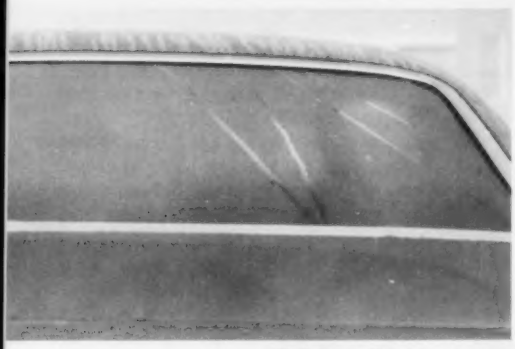
A semi-tractor trailer was moving down an interstate highway about 15 miles west of DRIVER's offices. It was traveling very slowly because of the thick, impenetrable fog. It was rear-ended by a pickup truck, and then it was rear-ended again by a passenger car. A second 18-wheeler managed to stop before contacting the wrecked vehicles, but it was then hit by a third rig. Nineteen more vehicles crashed into these to make this one of Southern California's worst chain collisions ever. In all, 24 vehicles were damaged or destroyed, including *seven* semis. Seven people died, and 17 were injured. Besides this, millions of dollars in vehicles and cargo were lost.

An isolated incident, to be sure, and an unusually horrible one. But the message is clear: Fog is perhaps the worst possible driving condition, in terms of visibility. At night, you can turn your lights on. In rain or snow you can see something. However, if a fog is thick enough, your lights won't help you.

Listen to this more common example, from a friend of ours. "I was driving to work by my usual route, down a few side streets. The fog hadn't been too bad, just interesting and actually kind of pretty. I turned down a little narrow residential street, and I could see little wisps of fog go past my headlight beams. Suddenly, the stuff got thicker and then, for just a second or two, I couldn't see anything at all out thewindshield.

"I quickly came out of that section of the fog and got to work without any more problems. But for that second or two, I had actually been frightened. The street was narrow, with cars parked on both sides, and there was no sidewalk, so that the children walking to school always walked out in the street. If that area of fog had been larger I might have hit some kid walking in the street, or a parked car."

What is this stuff that can drop in on us and make it impossible to see where we're going? The dictionary defines fog as "vapor condensed to fine particles of water suspended in the lower atmosphere that differs from cloud only in being near the



Moisture like this can condense on your car's windows, even on the inside. For safe driving in fog, make sure you clear the glass off.

There's enough visibility here to drive — slowly. But remember that in fog, visibility can drop off to nothing in no time, when you drive into a thick part of the cloud.

Your headlights are as important in showing your position to others as they are in enabling you to see where you're going.

ground and is sometimes distinguished from mist in being less transparent."

This lack of transparency is what makes fog so dangerous. If you can't see what's ahead, there might be a brick wall and you wouldn't know it until you made contact.

An officer of the California Highway Patrol put it this way: "The problem is an attitude on the part of drivers that if you can't see it — cars, trees or other obstacles — it isn't there."

That sounds to us like that dumb old philosophical question "If a tree falls in the forest and there's nobody there to hear it, does it make a sound?" Well, we're pragmatists; we believe there is sound. And we believe if there's an accident up ahead in the fog and you don't see it, you'll still run into it.

Driving in fog — don't: The first thing you should ask yourself when you see foggy conditions is "Is this trip really necessary?" Do you have to go out now or can you wait to drive later, after the fog has lifted? If you can wait, do so.

Not only is visibility bad in fog, but it can worsen very quickly. Fog is not uniformly thick. You could be driving along with several car lengths of visibility and suddenly find your range of vision cut to the area of your hood ornament. In that case you wouldn't know there was anyone there until you hit him.

Further, the water vapor will collect not only on your car's windows, but also on the road, making a slippery surface on which to drive.

If you have to: Let's say the trip really is necessary, that you have to get to work or you have an urgent errand to run. Then go, but be careful.

The most important thing to do is to drive slowly. But not *too* slowly. Up to a point, driving slowly is wise and cautious driving. After that point, driving slowly is probably a sign that visibility is so bad that you should get off the road. For instance, if you feel unsafe driving faster than 10 miles per hour, perhaps your instincts are telling you to stop for a cup of coffee.

Use your headlights, day or night. They will help you see at night (a little) and in the daytime (again, a little), but perhaps their most important use is to alert other drivers of your position.

Keep your headlights on the low beams. In clear weather your brights will help you see better, but in fog they will actually hinder your vision. The high beams are aimed higher and they re brighter (therefore the labels "high beams" and "brights"). In fog, the additional light will reflect off the droplets in the water vapor and dazzle oncoming drivers. If you don't care about that, consider that the fog will reflect that light right back at you and you'll be dazzled yourself.

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Above all, be ready to stop at any time. Be even more alert in the fog than you are in the clear weather.

Get off the road: It could happen that you'll be on the road and suddenly find the fog completely obscures your view of the lane markers, the edge of the road, and the other traffic. If you see that visibility is worsening, get off the road. If you can't see, it's dumb to go on. It's also dangerous.

Get as far off the road as you can and turn on your warning flashers. If you use just your lights, someone might see you, follow your taillights off the road surface, and hit you. After you're off the road, wait for the fog to dissipate a little before you proceed. When you get back on the road, make sure you can see far enough behind to avoid being hit by oncoming cars. After all, you're accelerating from zero mph.

night

Here comes some joker with his high beams ablaze. In this case, flash to bright and then back to dim. If he fails to lower his lights, watch the lane markers and the road's edge until he goes by, to protect your night vision.

Driving at night calls for better vision and more caution than daytime motoring. We know some people who are wary of driving after the sun goes down, or who refuse to do so altogether. And we know some others who are so sensitive to glare that they find the shine from other motorists' headlights extremely uncomfortable, even on low beam. (The usual complaint from one man is, "I wish that guy would dim his lights," when in fact they are already on low beam.)

These problems are not so uncommon as you might think. One of seven people in their twenties has a problem adjusting to glare. And we all become less able to see in the dark as we grow older. By age 50 a person may need twice as much light at night to see as well as a 20-year-old.

Of course, even with perfect vision, problems persist. You simply cannot see as well at night as you can in the daytime. At night it is difficult to judge distances, color perception is severely curtailed, and it is difficult to distinguish shapes and sizes.

Your car's headlights are all you have for an aid to vision at night, and they aren't as bright as you might think.

Nor do they shine very far down the road. Make sure you are driving slowly enough that you can stop within the area they light.

Faced with this, it is doubly important to help your eyes conquer the night when you must drive.

First, make sure all the glass in the car is clean. This includes not only the windshield and mirrors, but also the *inside* of the glass. The film that builds up on the inside of the windshield is often overlooked. Run your finger over the glass and you'll see how bad this film is. Don't forget to keep your eyeglasses clean, if you wear them.

Guard your night vision, because it is harmed by excessive light. There isn't a lot you can do, but here are a few suggestions. First, don't look directly at the headlights of passing cars. The glare could wipe out your night vision. Also, dim the lights on your dash enough so you can still read the dials, but so they don't detract from your sight.

You might also wear sunglasses in the bright sunlight, because they will aid your eyes in conserving rhodopsin, the chemical that helps you see in low light. The sunglasses might also be a good idea when you get out of the car at night in a brightly lit area, to minimize their readjustment to darkness. However, *never* wear sunglasses when you are driving at night.

Night moves: At night, you can receive help from your peripheral vision. Peripheral vision is side vision — seeing things "out of the corner of your eye." Peripheral vision is sensitive to light, movement and anything that's lighter or darker than the background, which can be helpful to the present problem.

Most of us use our peripheral vision only unconsciously, when for instance some sudden movement to the side makes us react. But you can help yourself to use it more consciously. If you constantly move your eyes from point to point you will exercise the peripheral vision. Because your side vision is more sensitive to dimly lit objects, this movement of the eyes will help you see better at night. Of course, moving the eyes and head a little while driving is a good idea at any time of day. It helps you avoid eye fatigue, and it helps you avoid being lulled into a condition of "highway hypnosis," when you're driving in a daze. Driving should be an *active* thing.

Another thing to protect your night vision from is brightly lit oases, such as this service station. When you stop for gas, you might slip on some sunglasses until you drive away. But *never* wear sunglasses to drive at night.

Adjustments: Adjusting to different light conditions is what will cause you problems at night. You have had the experience of walking from bright sunlight into a dimly lit place, like a restaurant. It always takes your eyes a while to adapt to the low light. It might be a few seconds before you can see well enough to walk without hitting something, and it might be many minutes before you can see anything in the shadows.

On the other hand, when you leave the restaurant your eyes quickly adjust to the bright sunlight again. The light hurts your eyes and you squint, but then it's over. Then if you were to immediately go back into the restaurant, you'd have that slow adjustment period to go through all over again.

It's a similar situation when you're driving and you encounter bright light. You're driving along in the dark, with your eyes accustomed to the low light. Then a car appears, coming toward you with his high beams blazing. Your eyes will quickly adapt to this new situation of bright light. After the car passes, your eyes have to readjust to the darkness again. This is a slow process by comparison, and you could be driving for some distance without being able to see adequately.

Glare protection: Once again, protect your eyes against the bright light. When you are driving through a brightly-lit commercial area of the city, avoid looking at the lights.

This also goes for headlights of oncoming cars, or perhaps we should say *especially* for headlights. If you look at the headlights you'll end up with a spot right at the center of your vision, just like the blue spot you get when Dad sets off a flashbulb on his camera. That takes some time to go away, and it's also annoying.

Here's how to handle the light from headlights. Look away from them, especially when they are on high beam. Watch the lane markers, your own path ahead, and the edge of the road, keeping your eyes moving to avoid the spots in front of your eyes. Allow your peripheral vision to keep you informed on his progress.

If you do meet up with someone who's shining his brights (and if you're not like our friend to whom *every* headlamp looks like a high beam), you may have to put up with it. But flash your own lights to bright and then quickly back to low beam. It could be that he just didn't remember he had his high beams on, and he will graciously dim his lights. If however he's one of those creeps who doesn't care if anyone else can see, shrug it off and look away from his lights. There's nothing to be gained from turning your brights on, too.

Light limits: Let's continue with a little more information about headlights, specifically their limits. Headlamps will brighten an area only so far

continued

low light no light

continued

ahead, about 300 feet at 60 mph. Beyond that, anything could be in your way. Therefore, it's important to keep your speed low enough at night so that you can stop within the area that your lights are illuminating. Most cars need about 360 feet to come to a full stop from 60 mph. Going too fast at night is a foolish practice called "overdriving your headlights." When you do this, you are literally gambling there is nothing in your way.

You can also have limited light from your headlamps if they are misaimed. You've seen those cars that look wall-eyed because one light is misaimed. The drivers of those cars are asking for difficulty. A headlight aimed less than one degree too far downward will have one-third less range. So check the aim of the lights and adjust them if necessary.

The amount of following distance you allow is another thing that should concern you at night. In the daytime, you can gauge your distance very accurately behind the car ahead, and easily adjust to slight changes in its speed. At night, there is a lot less light with which to see how the car ahead is maintaining its speed. Since it's harder to tell how steadily he's moving, give yourself more room at night. The distance between you and those around you is your safety zone.

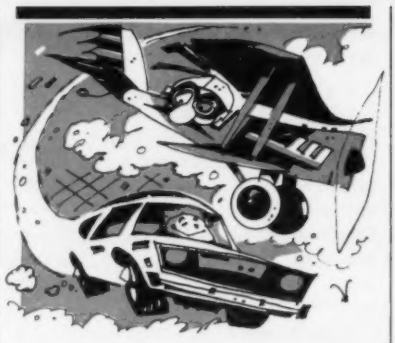
Breakdown: A breakdown in the daylight is bad enough; at night it can be dangerous, because other drivers might not see your disabled car. If you have a nighttime breakdown, get the car to the side of the road (or the shoulder, if you're on a highway) and turn on the emergency flashers. Put flares or other warning devices to the side of the car and some distance behind it. Because bad or drunk drivers sometimes hit stalled cars, stay away from the car.

So that's our word on driving in low visibility. Next month we'll continue with some more seasonal words, this time on driving in spring. We hope just the thought of the coming thaw will help you make it through. Hang in there!

EDITOR'S NOTE: For more information on headlights and auxiliary lights, see "Auxiliary Lights," The Backyard Mechanic, July 1980 DRIVER, "Lights," The Backyard Mechanic, February 1980 DRIVER, and "Halogens Are Here," also February 1980.

tteecc!h!h DOUBLE TECH Q&A

With TSgt RON LATHROP



What are you trying to do, get people arrested? In December's "Double Tech" you suggest using 100 octane aviation gasoline in cars with high performance engines. It's illegal to use any fuel in a street vehicle that hasn't been taxed for road use.

You might be right, except that when the distributor sells aviation fuel to the airport, the road use tax is included in the price. The airport then applies to the state for a refund on that portion that was pumped into aircraft. Now you might run into a problem getting the airport to pump the fuel into your street machine simply because they don't want to be bothered, but the tax problem is theirs as the seller, not yours as the consumer. In the meantime, remember that the federal government regulates the amount of lead in any fuel today, including super premium and aviation fuels.

OK, folks, let's take another look at the problem, that is the declining availability of premium leaded gasoline — especially for pre-1971 high performance vehicles.

Generally lead additives in fuel prolong valve life but shorten sparkplug life. Notice two words in the preceding sentence: generally and additives. The general extension of valve life in relation to the materials used to make valves today is not that much. But the longer life of sparkplugs and oil when using unleaded is very measurable. Meanwhile, there are additives. Lead is an additive. In unleaded fuels lead is replaced with another additive to raise the octane.

In recent fuel shortages, the octane numbers posted on the unleaded pumps of many companies went up. Why? Because the octane-raising additive is a liquid, and by increasing this octane booster each barrel of oil produces more gallons of gasoline at the pump in addition to jumping the octane rating. Also, more and more readers have begun to notice not only the disappearance of the premium pump but also the presence of two unleaded pumps: one with a higher octane rating than the other. The bottom line on that is: buy the octane you need. If your engine will run on the lowest octane unleaded without too much "ping," don't buy the higher-rated fuel thinking you'll get more power or better economy. It just ain't so.

OK, so you have an older high-performance engine. Usually today's higher octane unleads will meet your combustion chamber demands. But an occasional tank of leaded fuel is a good idea. If the highest octane unleaded still "knocks" more than you would like, try this. Pump in eight gallons of unleaded and two gallons of leaded regular. The octane might be just enough higher from the mixture to do the trick. (Work with a ratio of about 15 to 20 percent leaded to unleaded.)

If you still have "ping" problems, then you may have to invest in a good-quality water-injection system.

But before you do, make sure that you can't live with the "ping." (See "Learning to Love the 'Ping'," July 1979 DRIVER.) If the engine only "pings" under fast acceleration, live with it. That ping or knock means you're getting the maximum out of that fuel. However, if it knocks every time you touch the throttle, you'd better start searching for a solution.

While I lived in Maryland, I started using gasohol. I did what was recommended and changed the in-line gas filter, even though my van just had about 8,000 miles on it. I experienced improved performance and better mileage so I was pleased. When I moved to Ohio last summer, gasohol was not yet available so I continued with regular unleaded. Recently, gasohol became available here so I started using it again — with terrible results! I have run three tankfuls through the van (two different brands) and the performance was very sluggish and my MPG dropped significantly. Once I returned to the regular unleaded, everything was OK again. I don't understand why this would happen if the gasohol is really higher in octane. I hope you can shed some light on the problem.

Did you change the filter again? If not, give it a try. The ethanol used in the 90 percent gasoline-10 percent alcohol mixture contains water. The water will separate out in cold weather and accumulate in the fuel tank. Later it will be pumped toward the engine and clog the fuel filter. The same ethanol is an excellent solvent and carries dirt it has removed from the fuel system to the filter.

Yes, the 98 octane ethanol in the 87 octane unleaded gasoline does raise the gasohol octane to about 90. That, however, doesn't mean increased performance. But it may be enough to stop "pinging."

You see, there are fewer B.T.U.'s (British Therman Units — a standard for measuring heat production) per gallon of gasohol than gasoline — 110,000 for gasohol, 114,000 for gasoline. As a result, a carburetor would have to be set slightly richer to properly burn gasohol. The ideal (stoichiometric) air/fuel ratio of gasoline is 14.5 parts air for one part gasoline, while gasohol is 13.9 to one. Therefore, when gasohol is run through a carburetor set for gasoline, the mixture is usually a little leaner.

Normally, this difference in ratios is not enough to cause major problems. But leaner operation problems can show up as surge, hesitation and stalls. If you're like most people, when your engine hesitates you give the gas pedal an extra pump that dumps fuel into the system. Therefore, poor performance from a too-lean carburetor can lead to excess fuel consumption because of a compensating driver. Have the carburetor reset to a gasohol ratio.

Vapor lock is another problem associated with gasohol. So if you are going to drive using gasohol in hot weather, carry a thermos of cold water to dump on the fuel pump and fuel line in case of vapor lock.

The bottom line? With a conventional carburetor, gasohol can either increase, decrease or maintain the vehicle's mpg depending on calibration. On the new closed-loop systems found on some 1979 models and many 1980 vehicles, there is about a three percent penalty in mpg when using gasohol.

DOES HE OR DOESN'T HE?

Is your mechanic certified by the National Institute for Automotive Service Excellence (NIASE) to perform in the area you need? For years you could glance at his sleeve and see if he was wearing the proper specialty stripe beneath his NIASE shoulder patch. The trouble was that a mechanic certified in several specialties almost had trouble bending his elbow with the up to eight stripes sewn to his sleeve.

Well, because of resistance to wearing the stripes, NIASE has developed a new credential card which provides the necessary consumer information and at the same time makes it more convenient for the mechanic to display his credentials. The credential card shows the areas of certification, expiration dates, the mechanic's name and identification number. Along with the credential card, the certified mechanic receives a plastic pocket protector which displays his credential card and fits into the breast pocket of his uniform shirt.

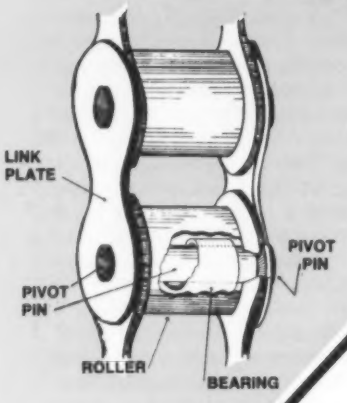
For those mechanics who prefer to display their stripes, NIASE continues to offer the fabric ribbons. Mechanics also continue to wear the orange and blue single or double gear NIASE shoulder patches.

EDITOR'S NOTE: Double Tech is a question and answer column in which DRIVER will attempt to make clear some of the cloudy subjects in readers' minds. Unlike other automotive magazines Q&A columns, Double Tech doesn't deal with specific questions such as, "Why does Very Rudebird smell like gasoline immediately after starting?" Instead Double Tech fields questions that are of general interest to the majority of our readers. However, when sending questions to Double Tech be sure to include all available information because this will help in finding the correct solution. If you have a question you'd like an answer to, and you feel others could use the knowledge also, send it to:

Double Tech
DRIVER Magazine
HQ AFISC/SEDD
Norton AFB, CA 92409

As with most magazines, DRIVER has a long lead time between writing and publication, so don't be surprised if it takes several months to get a reply.

MOTORCYCLE Drive Chain Care



Cutaway drawing of internal construction of a conventional (non-self-lubricating) chain link. *(By Carol Shuster)*

If you've ever had the misfortune of throwing a chain, be it out in the desert, back in the woods, or just before that last berm in that first motocross you had a good chance of winning, then you probably don't need to be told about the importance of proper chain care. But even street riders should guard against chain failure. Throwing a chain on the highway can ruin a beautiful weekend trip or even worse, damage expensive engine cases and sprockets. It also represents a very real hazard to rider and passenger since a broken chain can do bad things to feet and ankles.

It's a safe bet to say a modern bike's drive chain is the weakest link in the power train. When you consider the job it's been asked to do – often under miserable working conditions like water, dirt, grit and lack of lubrication – it's a small wonder that the chain does its job so well.

I'd like to give you some pointers on how to make life easier on your bike's drive chain as well as on your wallet. While DRIVER normally agrees with recommended service procedures, proper chain care is clouded in controversy. The important thing to remember about chain care is: just about any type of periodic chain care is better than none at all.

If you motorcycle drivers with the shafties are still with us, you are excused – but only after checking the oil levels in your final drives.

Required Tools: Most new motorcycles are equipped with small tool kits which usually contain the tools needed to adjust your bike's drive chain. Always carry this tool kit on the bike as chain adjustments often can't wait until you're back home or near the Hobby Shop. If your bike doesn't have a tool kit, then the first tools you'll want to invest in are *open-end wrenches* for the rear wheel axle nut, chain adjuster nut and brake anchor plate nuts. Sizes vary, so check your bike's requirements before shelling out hard-earned cash for a wrench that won't fit.

Another "tool" you'll want to carry along is a 12 to 15 foot long piece of string, which is used to determine correct wheel alignment and maximum chain tension. The string is also handy for securing your wrenches or tool kit when they are carried on the bike.

You may also want to get a motorcycle tie-down strap, although an extra pair of hands belonging to a good friend will suffice. Have a clean rag nearby, as well as your favorite brand of chain lubricant.

Also, have your owner's manual handy whenever you perform maintenance. You might even consider purchasing the appropriate workshop manual for your bike. These manuals are available from most dealers.

CHECKING FOR WEAR

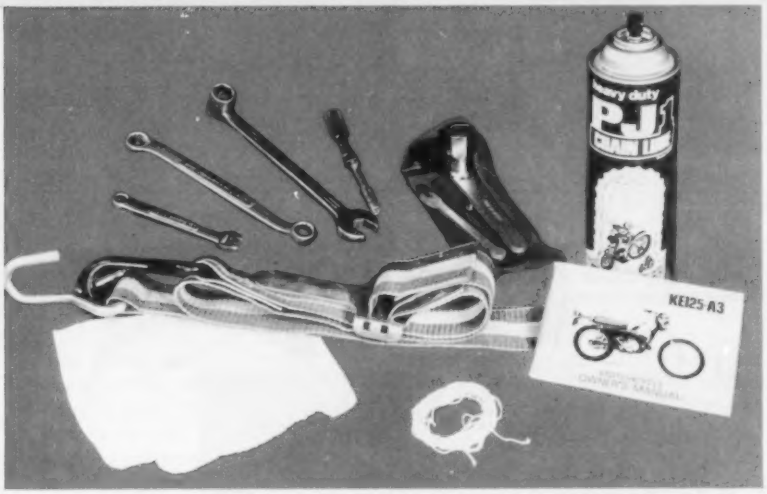
Sprockets. Before you begin to check the chain for excessive wear, inspect the sprockets for damage and wear. Worn sprockets will ruin an expensive new chain in no time. Be sure to check both the countershaft (gearbox) sprocket as well as the larger rear wheel sprocket. Some slight, even, cupping of the sprocket teeth is inevitable, but severe cupping means it's time for new sprockets.

New sprocket (foreground) vs. worn sprocket (top or rear). Note: Worn sprocket has much blunter and wider teeth. Also, slight cupping has occurred.

Required reading for the chain gang

by LEE K. SHUSTER

photos by DAVID H. POLCYN



Required tools: Owner's manual, chain lubricant, string (10 to 15 ft), rag, tool kit, open-end wrenches and motorcycle tie-down strap.

Chain. To check the chain for wear simply grasp one link at the rear of the wheel sprocket and pull it with your thumb and forefinger. If the chain link is loose enough to expose most of one sprocket tooth, you should probably remove the chain and measure it for wear.

Chain Removal. Before removing the chain, you should check to see if your bike has a concealed countershaft sprocket. If the countershaft sprocket is not clearly accessible, here's a tip that will save you a lot of trouble when it comes time to reinstall the chain. First, get an old piece of chain (of matching pitch and width) about two to three feet long and connect the old chain to the end of the chain being removed. With the gearbox in neutral, carefully draw the dummy chain around the counter shaft sprocket and leave it until the original chain is reinstalled. *Note:* When reinstalling the chain, insure that the master link retaining clip is pointing in the direction of forward chain travel. Now disconnect the original chain and remove it for measuring.

Measuring Chain Wear: Chain wear usually occurs as the *rollers* and *pivot pins* become elongated (see illustration). This causes the chain to stretch. The amount of stretch should generally not exceed 2 percent. To measure stretch, place the chain on a flat surface and measure it from tip to tip, first fully compressed and then fully stretched. (To compute the maximum allowance, multiply the compressed length by 1.02; the result is the maximum allowable stretched length.) For example, if you measure the compressed chain to be 60 inches long, then the maximum allowable stretched length would be 61¼ inches. Replace any chain which has stretched beyond the 2 percent allowance. A stretched chain will not only cause the sprockets to wear faster, but it will eventually break with the possibility of expensive (and dangerous) engine case or sprocket damage.

Lubricating Chains: At this point you're probably wondering why your chain stretched out and died after such a short life. The key to longer chain life is lubrication. Your engine won't live long without oil and neither will your chain. Use one of the aerosol penetrating lubricants frequently. But if your bike is equipped with a "self-lubricating" chain, follow your owner's manual instructions.

To lube the chain, place the bike on its centerstand with the engine off and the gearbox in neutral, and spin the rear wheel by hand. Then spray each side of the chain between the *link plates*. On the street bikes it's best to do this after a ride so the lubricant can have time to penetrate the *roller pivots*. If you lubricate just before riding, you're likely to fling oil everywhere. Needless to say, oil on your rear tire is an invitation to disaster.

Chain Cleaning Myths: Most manufacturers recommend removing the chain and soaking it in solvent to thoroughly remove the dirt and old lubricant. Then most manuals recommend relubricating and installing the chain.

Removing the exterior crud is OK, but when you soak a chain in solvent it usually dissolves the protective lubricant that you have been faithfully apply-

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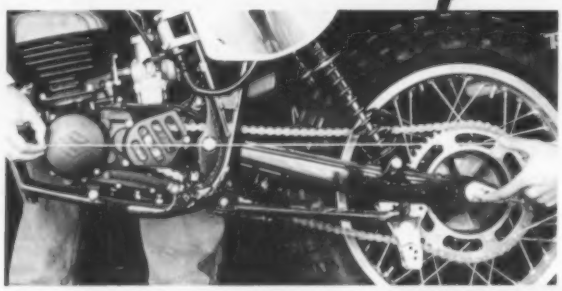
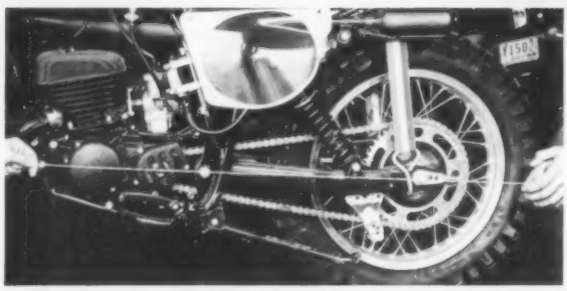
Lubricating chain with aerosol. Screwdriver tip points to space between link plates where lubricant should be applied. Both sides should be lubricated at this point.

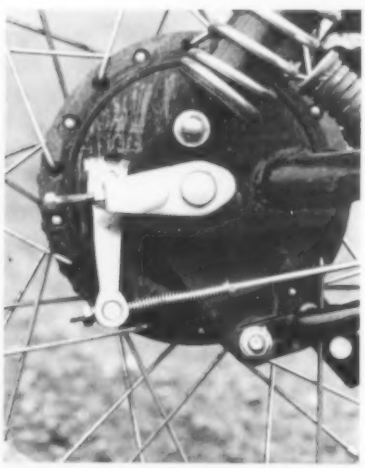
Proper alignment of rear wheel using the string sighting method.

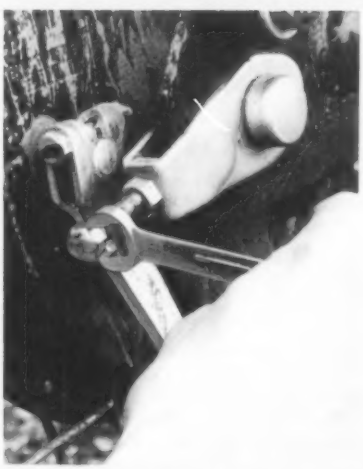


Countershaft sprocket, swing arm pivot and rear wheel axle are not in line when bike sits at rest, consequently chain is not at tightest point. String indicates how far swing arm must travel to reach tightest point.



(right)
Swing arm has been compressed using tie-down strap. Rear axle is now in-line with countershaft sprocket and swing arm pivot. Chain is now at tightest point. Note; Chain is visibly tighter in this photo than in previous photo.





(left) **Brake anchor plate bolt** and arm located at 5 o'clock. Brake adjuster nut located at 7 o'clock. Wheel and chain adjustment bolt located 9 o'clock. (right) **Make a point** to leave the top of the adjuster nut or bolt in a horizontal position as shown. This makes it easier to count turns when going from side to side. Make sure to loosen the locking nut before trying to adjust the bolt, otherwise you're likely to strip the adjuster mechanism.

Always tighten the axle nut by pulling forward. This prevents the axle from accidentally shifting, producing misalignment.

ing. This allows the abrasive particles to enter the insides of the chain *rollers*. So, although the outside of the chain looks cleaner, the inside is actually dirtier. Once the tiny abrasive particles enter the *bearing surfaces*, it's almost impossible to remove them. Thus more harm than good is accomplished and chain life is decreased.

Recommended Cleaning Procedure: A better way to clean your chain (this applies to either street or dirt bikes) is to first remove the large dirt deposits with a brush. Then wipe the chain with a clean oil-dampened cloth. Finish the job with a liberal application of spray-on lubricant as mentioned earlier. This process is easier than the mythical "remove and soak" process and should be performed more frequently. Periodic applications of lubricant will build up a protective layer and prevent most of the dirt and crud from entering the insides of the chain, and thus prolong chain life.

Wheel Alignment Myths: Proper wheel alignment is essential to allow a motorcycle to have good tracking and handling qualities. DRIVER stresses the importance of proper wheel alignment not only for safety's sake but also because proper alignment promotes longer chain, sprocket, and tire wear.

Many motorcycle manufacturers provide index marks or "hash" marks to facilitate chain and rear wheel alignment. These marks are usually located behind the rear axle as part of the chain adjuster assembly. In theory, correct wheel alignment will occur when both the left and right adjusters are set on equal alignment marks. This may be true for some bikes, but frequently it results in gross misalignment of the rear wheel.

Several motorcycle manuals recommend aligning the rear wheel in this fashion, but don't trust the "hash" mark method. There may be a better way.

DRIVER suggests the wheel alignment be checked each time the chain is adjusted.

Recommended Wheel Alignment Procedure: First place the bike on its centerstand with the front wheel pointed straight ahead. Using a long string (12 to 15 ft), tie the string onto a spoke of the front wheel, near the ground, and towards the front of the wheel. Pull the string around the front of the tire and then to the rear. Be sure the front wheel stays pointed straight ahead. While kneeling close to the ground, several feet behind the bike, pull gently on the string so that it is resting along the sidewalls of both front and rear tires. Adjust the rear tire so that it is evenly framed in your line of sight with the front wheel by the string. Repeat this sighting with the string on the opposite side of the wheels to recheck your alignment.

Always install master link retaining clip pointing in direction of forward chain travel.

Chain Adjustment Intervals: How often should you adjust the chain? Frequent small adjustments are far better than fewer large takeups. Many touring riders travel hundreds of miles in a day without requiring an adjustment, while motocrossers using long travel suspensions in competition often adjust chains after a single heat. For the average commuter, once-a-week adjustments may be the answer. Your particular riding habits will dictate your adjustment intervals. One safe ruls is: When in doubt—*ADJUST*.

Determining Proper Chain Tensions: The first step in determining the proper chain tension is to locate the center of the swing arm arc. This is necessary because the swing arm suspension found on most modern motorcycles varies the chain tension between each extremity of the suspension travel. The chain is tightest at the centerpoint of the arc and looser at each end of the arc. It is important to check the chain tension at its tightest point to avoid overtightening and stretching the chain.

The chain will be at its tightest point when the centers of the rear axle, swing arm pivot and countershaft sprockets are in line. To determine your chain's tightest point, try this: Hold a piece of string across the centers of the countershaft sprocket and swing arm pivot. Then extend the string rearward in a straight line to indicate where the axle should be to achieve maximum chain tension.

On most bikes you'll need to compress the rear suspension to find the point of tightest chain tension. For this you may want to use a muscular friend or a motorcycle tie-down strap.

Having compressed the suspension to the chain's tightest point, you are now ready to check the chain for "free play." Free play is the total up and down movement of the chain. For street bikes one-half inch free play is recommended, while dirt bikes need three-quarters inch free play.

Chain Adjustment Procedure: Now that you've determined your chain is in need of adjustment, here's how to do it:

1. Loosen the brake cable or brake rod adjuster found near the rear of the cable or rod, next to the rear brake arm.

2. Loosen the brake backing plate anchor bolt. This prevents damaging the plate. The backing plate anchor is usually an arm attached to the swing arm which prevents the backing plate from turning when the brakes are applied.

3. Loosen the axle nut by pulling your wrench to the rear of the bike.

4. Loosen the adjuster locknuts. Turn the adjuster bolts located at each axle end. It's a good idea to bump the wheel since this firmly seats it against the adjuster stops. By leaving the top of each adjuster bolt in a horizontal position, you can count an equal number of turns for each adjuster bolt, to

continued

maintain proper wheel alignment. Check chain free play to assure proper tension. Using the string, check rear wheel for proper alignment. Don't forget to tighten the adjuster locknuts, after you've found the proper alignment.

5. Tighten axle nut carefully, pulling wrench to the front of the bike. This helps to seat the axle against the stops and is less likely to disturb your wheel alignment and chain tension adjustments.

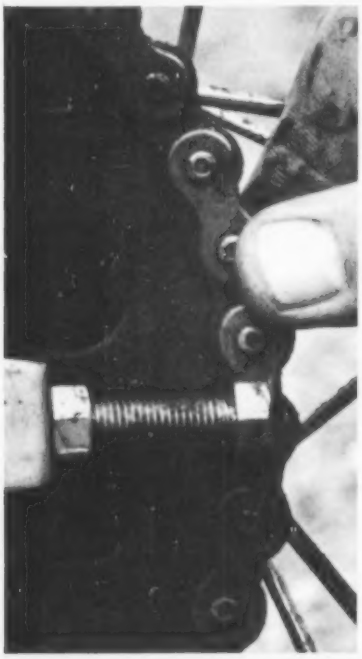
6. Recheck the rear wheel alignment, again using the string procedure. It is very easy to disturb this adjustment on the previous step, so it's better to catch it now than when you're wobbling through that tight bend or curve in the road.

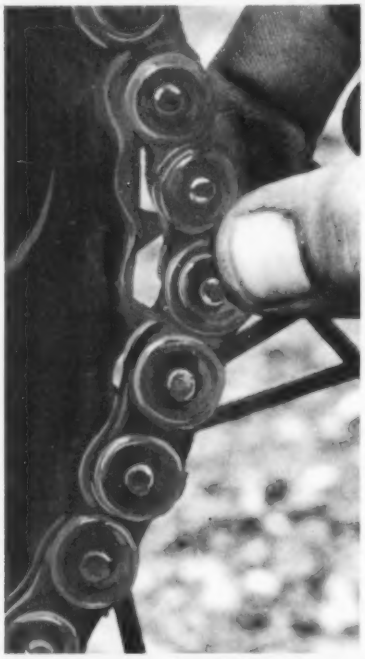
7. Before tightening the backing plate anchor bolt, you should push the bike forward and slam on the rear brakes, holding them on until the backing plate anchor bolt is tightened. This will require the help of a friend, but it insures that components seat properly and that rear brake action and feel is not disturbed.

8. Tighten and adjust the rear brake cable or rod for the correct amount of free play at the brake pedal (usually one-half inch or less).

If you've stayed with me this far, congratulations. I hope I've cleared up some of the myths about chain care and adjustments. If all this seems rather drawn out and complicated to you at this point, go through it one more time and follow each step closely. In the long run the few minutes spent caring for your bike's chain will be well worth the peace of mind gained from preventing potential problems before they occur.

Special thanks to Athens Sports Center, Athens, Ohio.





(left) **Checking** chain and sprocket for wear. This is a chain with little or no wear. When the chain is pulled away from the sprocket very little sprocket tooth is exposed. Contrast this with the next photo. (right) **Checking** for chain and sprocket wear. When pulling the chain away from the sprocket, much of the sprocket tooth is exposed. This cannot be corrected by increasing chain tension. This bike needs a new chain and two new sprockets.

BACKFIRE
LETTERS to the EDITOR

BUYING SEAT BELTS

In recent months I have begun to read more and more of your publication. I have come to enjoy reading this publication. It's a well-worth effort to keep on publishing it. It has helped me in many ways.

I have a question I would like to ask. I recently bought a 1975 ½-ton Chevy pick-up, SWB, step-side. When I purchased the truck it had no seat belts. I have checked all kinds of parts stores but no one seems to sell them except the dealer. I saw a pair of seat belts in a Sears catalog which are used mainly for off-road vehicles, and some for cars, but none for trucks. Would it make any difference if I were to use any of these seat belts in my truck, as far as safety goes? Also, what about buying belts from a junk yard?

I know you've printed articles on this subject before, but could you please do it again for us newcomers? Please send me any information, or tell me how to solve this problem.

Thank you for your time, and keep DRIVER coming.

A1C Thomas G. Schwartz, USAF
Tyndall AFB, FL 32403

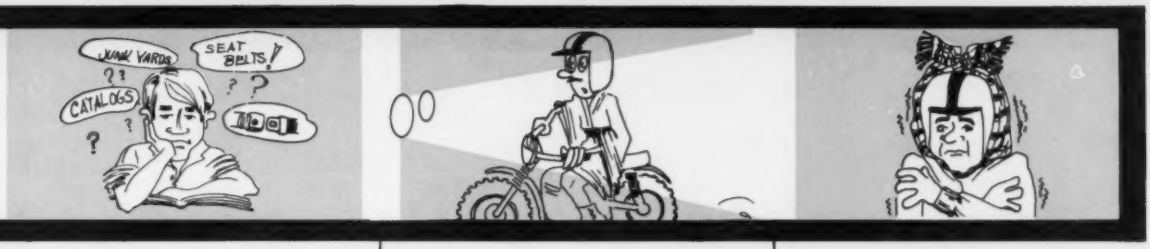
Don't take a chance on worn belts from a junkyard car. Buy new ones. Selecting them from a catalog is fine. They are adjustable and not difficult to install. Just follow the directions carefully.

HELMET SAVES MOTORCYCLIST'S LIFE

Just recently I found out the facts of life when it comes to riding or, in my case, crashing a bike.

If I begin the story by saying that I've been riding only a few months, most of you old timers will probably say, "Well, that explains it right there, he just doesn't know how to ride yet."

If you experienced folks will bear with me, you may have some different thoughts. Those of you without much experience should read on



too. The same type of thing just may happen to you, and more than likely will.

Like about a million other guys, and girls, I bought a bike for the good gas mileage. I had it all checked out, and it was in perfect condition. I attended the motorcycle safety course on base and consider myself an excellent driver. I've never had any tickets or accidents and I refuse to drink and drive. In fact, I'm proud to say I don't drink at all. Actually, the only way I think I could be more cautious would be to park the bike for good.

I was driving home one evening from a student's house. I teach karate when I'm not working on radar for the Air Force. Anyway, I was going down a four-lane road through a developed area, you know, built up with businesses and such. I chose to be in the left-hand lane and was doing about 35 mph, the legal speed limit, when a strange motion up ahead on the right caught my attention.

It was an old Buick making a big circle in a gas station parking lot. His movement was so quick and jerky that I thought he was going to whip out. I downshifted and slowed to about 25 or 30 mph. When he got all the way around and facing the road he stopped.

If you have a good imagination, picture the car's highlights pointing across the road and angled down my way. With the car stopped and the headlights on me, I assumed — no, I *knew* — he'd seen me. He had to. He didn't.

I began slowly accelerating back up towards the speed limit and, at the very last possible second, he pulled out. What do you do when there's not enough time to do anything, no room to swerve out of the way, and you just know that a collision is inevitable?

What happened next some of you might have experienced in other accidents. Just about the time that I knew it was all over, and blurted out my favorite profanity, somebody pushed a button and everything went to slow motion. It was like an instant replay on Monday night football. My front wheel hit his rear quarter panel. The bike made a vain effort to take up some of the impact and then disintegrated. Result — bike totaled and the car undrivable.

Just before I hit, lots of martial arts training paid off. In the past five years I've done a number of demonstrations of pain control. Fortunately I relaxed for the impact. When my knees hit the car it felt like my hips came right out the back end. Next came the bell ringer. My head hit and the pain went from my forehead to my toes.

Luckily, I had very little airborne travel. After I hit the car I fell to the street just a few feet from the point of contact. The pain was incredible. I kept telling myself, "Think, relax, breathe." It kept me from yelling or crying.

The ambulance drivers were starting to lose count. I was the fifth motorcycle accident they'd been out on that Tuesday evening and there were two more after me. I thought every bone in my body was broken. Not one! The helmet saved my life. I'm also convinced that relaxing saved me from a bunch of broken bones. I was really lucky. I came out of it with a lot of bruises and about a million strained muscles.

The worst thing that happened to me was the torture of lying in the emergency room for two hours next to a girl who wasn't as lucky as I was. She let out blood curdling screams and moaned the whole time. She had apparently left most of her skin on the road and they were scrubbing the gravel and dirt out of her open flesh. As for me, after about a week in bed and lots of TLC from my wife, I'm about 95 percent back to normal. Thank God.

My personal reaction to the accident is that I think I'm very lucky and I'm sure I won't be as lucky next time. I'll never ride again. It's just not worth it for me.

Nobody can tell you not to ride a motorcycle and certainly not me. But if you do, please wear a helmet. And another thing, watch that other guy like a hawk and assume he's going to make the stupidest, most irresponsible move. He probably will.

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HYPOTHERMIA AND MOTORCYCLISTS

I just read the article on hypothermia and motorcyclists in the October 1980 issue of DRIVER. I have to comment on item 8 on caffeine.

You suggest coffee, tea, or hot chocolate to add heat to the body. Caffeine, which is commonly found in each of these drinks, is a vasoconstrictor. The effects of blood vessel construction are well described in the article, so I won't elaborate on them.

Hot soup, or even plain hot water, is just as effective without the drawbacks.

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Share the road

YIELD

Habits that control our driving often keep us from recognizing an approaching motorcycle as a vehicle and from yielding the right of way when we should.

Let's all sharpen our driving awareness of two-wheeled vehicles during the daytime and watch for the single approaching headlight at night.